









## TEST REPORT

### IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006 Information technology equipment – Safety – Part 1: General requirements

<b>Report Reference No.</b> .....	3156776MIN-001
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Total number of pages .....	40
<b>CB/CCA Testing Laboratory</b> .....	Intertek
Address .....	7250 Hudson Blvd., Suite 100, Oakdale MN 55128, USA
<b>Applicant's name</b> .....	Remote Technologies.
Address .....	5775- 12 <sup>th</sup> Avenue East , Suite 180 Shakopee, MN, MN 55379, USA
<b>Manufacturer's name</b> .....	Remote Technologies.
Address .....	5775- 12 <sup>th</sup> Avenue East , Suite 180 Shakopee, MN, MN 55379, USA
<b>Factory's name</b> .....	Remote Technologies.
Address .....	5775- 12 <sup>th</sup> Avenue East , Suite 180 Shakopee, MN, MN 55379, USA
<b>Test specification:</b>	
Standard .....	<input checked="" type="checkbox"/> IEC 60950-1:2005 (2nd Edition) and/or <input checked="" type="checkbox"/> EN 60950-1:2006
Test procedure .....	CE
Non-standard test method .....	None
<b>Test Report Form No.</b> .....	IECEN60950_1C
Test Report Form(s) Originator .....	SGS Fimko Ltd
Master TRF .....	Dated 2007-06
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<b>Test item description</b> .....	Connection box
Trade Mark .....	
Manufacturer .....	Remote Technologies
Model/Type reference .....	CB - 8
Ratings .....	16 VDC, 6 A

<b>Testing procedure and testing location:</b>	
<input checked="" type="checkbox"/> <b>CB/CCA Testing Laboratory:</b>	Intertek
Testing location/ address .....	7250 Hudson Blvd., Suite 100, Oakdale MN 55128, USA
<input type="checkbox"/> <b>Associated CB Laboratory:</b>	
Testing location/ address .....	
Tested by (name + signature).....	Tedla Mengistu 
Approved by (+ signature).....	Zoltan Kertay 
<input type="checkbox"/> Testing procedure: TMP	
Tested by (name + signature).....	
Approved by (+ signature).....	
Testing location/ address .....	
<input type="checkbox"/> Testing procedure: WMT	
Tested by (name + signature).....	
Witnessed by (+ signature) .....	
Approved by (+ signature).....	
Testing location/ address .....	
<input type="checkbox"/> Testing procedure: SMT	
Tested by (name + signature).....	
Approved by (+ signature).....	
Supervised by (+ signature).....	
Testing location/ address .....	
<input type="checkbox"/> Testing procedure: RMT	
Tested by (name + signature).....	
Approved by (+ signature).....	
Supervised by (+ signature).....	
Testing location/ address .....	

<b>Summary of testing:</b>	
<b>Tests performed (name of test and test clause):</b> Durability of markings, 1.7.11 Steady force test (10 N), 4.2.2 Mechanical strength tests (250 N), 4.2 Temperature tests, 4.5	<b>Testing location: CBTL (see above)</b>
<b>Summary of compliance with National Differences:</b> AT, CH, DE, DK, ES, FI, FR, GB, IE, IT, NL, NO, SE, SI, in accordance with CB Bulletin 112A.	
<b>Copy of marking plate</b>	
 <p><b>RTI</b></p> <p><b>Control System Connecting Block</b> Remote Technologies Inc www.rticorp.com Made in Taiwan</p> <p>Serial No. <input type="text"/></p> <p>Model <b>CB-8</b> Power DC 16VDC 6A (max) </p> <p>P/N 20-210081-14</p> <p>  117 612 914  CB8/01</p>	

<b>Test item particulars</b> .....	
Equipment mobility .....	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input checked="" type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains .....	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains
Operating condition .....	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location .....	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC) .....	<input checked="" type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values .....	N/A (no direct connection to mains)
Tested for IT power systems .....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V) .....	N/A
Class of equipment .....	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating (A) .....	6 A
Pollution degree (PD) .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class .....	IP X0
Altitude during operation (m) .....	N/A, no high altitude operation considered
Altitude of test laboratory (m) .....	N/A, no high altitude operation considered
Mass of equipment (kg) .....	0.5
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object .....	N/A
- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement .....	F (Fail)
<b>Testing</b> .....	
Date of receipt of test item .....	2008-07-25
Date(s) of performance of tests .....	2008-07-26 to 2008-07-31
<b>General remarks:</b>	
<p>The test results presented in this report relate only to the object tested.  This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.  "(See Enclosure #)" refers to additional information appended to the report.  "(See appended table)" refers to a table appended to the report.</p>	
<p><b>Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.</b></p> <p>Throughout this report a point is used as the decimal separator.</p>	

**General product information:**

The CB-8 is an installation accessory designed to provide convenient and reliable connections for up to eight RTI in-wall system controllers through the eight 'Input' connections. Multiple CB-8s may be daisy-chained to accommodate more than eight in-wall devices using the 'Loop In' and 'Loop Out' connections. In addition to providing power, the CB-8 combines and routes the infrared outputs from the system controllers to a single 'Output' for connection to an RTI control processor

1	GENERAL	—
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1.5	Components	—
1.5.1	General	P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1) P
1.5.2	Evaluation and testing of components	P
1.5.3	Thermal controls	No thermal controls. N/A
1.5.4	Transformers	No mains transformer. N/A
1.5.5	Interconnecting cables	No interconnecting cables N/A
1.5.6	Capacitors bridging insulation	No mains capacitors. N/A
1.5.7	Resistors bridging insulation	No resistors bridging insulation. N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	N/A
1.5.8	Components in equipment for IT power systems	No direct connection to mains. N/A
1.5.9	Surge suppressors	P
1.5.9.1	General	VDR's are only used in secondary circuits. P
1.5.9.2	Protection of VDRs	P
1.5.9.3	Bridging of functional insulation by a VDR	P
1.5.9.4	Bridging of basic insulation by a VDR	Functional insulation only. N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	Functional insulation only. N/A

1.6	Power interface	—
1.6.1	AC power distribution systems	No direct connection to mains. N/A
1.6.2	Input current	(see appended table 1.6.2) N/A
1.6.3	Voltage limit of hand-held equipment	Not hand-held equipment. N/A
1.6.4	Neutral conductor	DC only N/A

1.7	Marking and instructions	—
1.7.1	Power rating	Class III equipment. N/A
	Rated voltage(s) or voltage range(s) (V) .....	N/A
	Symbol for nature of supply, for d.c. only .....	N/A
	Rated frequency or rated frequency range (Hz) ...	N/A

	Rated current (mA or A) .....		N/A
	Manufacturer's name or trade-mark or identification mark .....	Remote Technologies	P
	Model identification or type reference .....	Model CB-8	P
	Symbol for Class II equipment only .....	Class III equipment.	N/A
	Other markings and symbols .....	None.	N/A
1.7.2	Safety instructions and marking	No manual is provided or required	N/A
1.7.2.1	General		
1.7.2.2	Disconnect devices	No direct connection to mains.	N/A
1.7.2.3	Overcurrent protective device	No direct connection to mains.	N/A
1.7.2.4	IT power distribution systems	No direct connection to mains.	N/A
1.7.2.5	Operator access with a tool	No operator access with a tool.	N/A
1.2.7.6	Ozone	Equipment does not produce ozone.	N/A
1.7.3	Short duty cycles	Continuous operation, no short duty cycles.	N/A
1.7.4	Supply voltage adjustment .....	No supply voltage adjustment necessary or possible.	N/A
	Methods and means of adjustment; reference to installation instructions .....		N/A
1.7.5	Power outlets on the equipment .....	No power outlets.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....	No fuse provided.	P
1.7.7	Wiring terminals	No wiring terminals.	N/A
1.7.7.1	Protective earthing and bonding terminals .....		N/A
1.7.7.2	Terminals for a.c. mains supply conductors	No direct connection to mains.	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	No direct connection to mains.	N/A
1.7.8	Controls and indicators	No controls or indicators.	N/A
1.7.8.1	Identification, location and marking .....		N/A
1.7.8.2	Colours .....		N/A
1.7.8.3	Symbols according to IEC 60417 .....		N/A
1.7.8.4	Markings using figures .....		N/A
1.7.9	Isolation of multiple power sources .....	No direct connection to mains.	N/A
1.7.10	Thermostats and other regulating devices .....	No such devices in the equipment.	N/A
1.7.11	Durability		P

1.7.12	Removable parts	Markings not placed on removable parts.	N/A
1.7.13	Replaceable batteries .....	No batteries in the equipment.	N/A
	Language(s) .....		—
1.7.14	Equipment for restricted access locations .....	Not intended for restricted access locations.	N/A

2	PROTECTION FROM HAZARDS		—
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	Metalic enclosure is provided	P
2.1.1.1	Access to energized parts	SELV circuits	N/A
	Test by inspection .....		N/A
	Test with test finger (Figure 2A) .....		N/A
	Test with test pin (Figure 2B) .....		N/A
	Test with test probe (Figure 2C) .....		N/A
2.1.1.2	Battery compartments	No batteries	N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage ( $V_{peak}$ or $V_{rms}$ ); minimum distance through insulation (mm)	(see appended table 2.10.5)	—
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards .....		N/A
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Measured voltage (V); time-constant (s).....		—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ..		N/A
	b) Internal battery connected to the d.c. mains supply .....		N/A
2.1.1.9	Audio amplifiers .....		N/A
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A

2.2	SELV circuits		—
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V) .....	Below SELV limits, Class III equipment.	P
2.2.3	Voltages under fault conditions (V) .....	Below SELV limits, Class III equipment.	P
2.2.4	Connection of SELV circuits to other circuits .....	SELV circuits are connected to other SELV circuits only.	P



2.3	TNV circuits		—
2.3.1	Limits	No TNV circuits.	N/A
	Type of TNV circuits..... :		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions ..... :		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed ..... :		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed ..... :		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		—
2.4.1	General requirements	No limited current circuits.	N/A
2.4.2	Limit values		N/A
	Frequency (Hz) ..... :		—
	Measured current (mA) ..... :		—
	Measured voltage (V)..... :		—
	Measured circuit capacitance (nF or $\mu$ F) ..... :		—
2.4.3	Connection of limited current circuits to other circuits		N/A

2.5	Limited power sources		—
	a) Inherently limited output	No limited power source used.	N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)..... :		—
	Current rating of overcurrent protective device (A) .:		—

2.6	Provisions for earthing and bonding		—
2.6.1	Protective earthing	Class III equipment.	N/A
2.6.2	Functional earthing		N/A

2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG..... :		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG..... :		—
	Protective current rating (A), cross-sectional area (mm <sup>2</sup> ), AWG..... :		
2.6.3.4	Resistance of earthing conductors and their terminations; resistance ( $\Omega$ ), voltage drop (V), test current (A), duration (min)..... :		N/A
2.6.3.5	Colour of insulation ..... :		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, nominal thread diameter (mm)..... :		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

2.7	Overcurrent and earth fault protection in primary circuits		—
2.7.1	Basic requirements	No direct connection to mains, no primary circuits.	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices ..... :		N/A
2.7.5	Protection by several devices		N/A

2.7.6	Warning to service personnel .....		N/A
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2.8	Safety interlocks		—
2.8.1	General principles	No safety interlock in the equipment.	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm) .....		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		—
2.9.1	Properties of insulating materials		P
2.9.2	Humidity conditioning	No hygroscopic materials used.	N/A
	Relative humidity (%), temperature (°C) .....		—
2.9.3	Grade of insulation	Functional insulation only.	P
2.9.4	Separation from hazardous voltages	No hazardous voltages in the equipment.	N/A
	Method(s) used .....		—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency .....	< 30 kHz	P
2.10.1.2	Pollution degrees .....	2	P
2.10.1.3	Reduced values for functional insulation	No reduced values considered.	N/A
2.10.1.4	Intervening unconnected conductive parts	Considered.	--
2.10.1.5	Insulation with varying dimensions	No such transformer used.	N/A
2.10.1.6	Special separation requirements	None considered.	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No such circuit in the equipment.	N/A
2.10.2	Determination of working voltage		P
2.10.2.1	General		P

2.10.2.2	RMS working voltage		P
2.10.2.3	Peak working voltage		P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages	No direct connection to mains.	N/A
	a) AC mains supply .....		N/A
	b) Earthed d.c. mains supplies .....		N/A
	c) Unearthed d.c. mains supplies .....		N/A
	d) Battery operation .....		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.3.4	Clearances in secondary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.5	Clearances in circuits having starting pulses	No such circuits in the equipment.	N/A
2.10.3.6	Transients from a.c. mains supply .....	No direct connection to mains.	N/A
2.10.3.7	Transients from d.c. mains supply .....	No DC mains supply.	N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....	Not connected to telecommunication networks or cable distribution systems.	N/A
2.10.3.9	Measurement of transient voltage levels	Transient voltages not less than normal.	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply .....		N/A
	For a d.c. mains supply .....		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests .....	Material group IIIb is assumed to be used	—
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	N/A
2.10.5.3	Insulating compound as solid insulation	No insulating compound used.	N/A
2.10.5.4	Semiconductor devices	Functional insulation only.	N/A
2.10.5.5.	Cemented joints	(see appended table 2.10.3 and 2.10.4)	P

2.10.5.6	Thin sheet material – General	Functional insulation only.	N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs)..... :		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components	No wound components.	N/A
2.10.5.12	Wire in wound components	No wound components.	N/A
	Working voltage .....		N/A
	a) Basic insulation not under stress .....		N/A
	b) Basic, supplementary, reinforced insulation .....		N/A
	c) Compliance with Annex U .....		N/A
	Two wires in contact inside wound component; angle between 45° and 90° .....		N/A
2.10.5.13	Wire with solvent-based enamel in wound components	No wound components.	N/A
	Electric strength test	(see appended table 2.10.5)	—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components	No wound components.	N/A
	Working voltage .....		N/A
	- Basic insulation not under stress .....		N/A
	- Supplementary, reinforced insulation .....		N/A
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards	No coated PCB's used.	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board	No supplementary or reinforced insulation between such conductors.	N/A
	Distance through insulation	(see appended table 2.10.5)	N/A
	Number of insulation layers (pcs) .....		N/A
2.10.7	Component external terminations	No coating over component terminations is used.	N/A
2.10.8	Tests on coated printed boards and coated components	No such parts.	N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A

2.10.8.3	Electric strength test	(see appended table 5.2)	N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling	Not required.	N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound	Pollution Degree 1 not considered.	N/A
2.10.11	Tests for semiconductor devices and cemented joints	No such parts.	N/A
2.10.12	Enclosed and sealed parts	No such parts.	N/A

3	WIRING, CONNECTIONS AND SUPPLY		—
3.1	General		N/A
3.1.1	Current rating and overcurrent protection	Class III equipment, no direct connection to mains.	N/A
3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring		N/A
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

3.2	Connection to a mains supply		—
3.2.1	Means of connection	No direct connection to mains.	N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm) .....		—
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type .....		—
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A

	Mass of equipment (kg), pull (N) .....		—
	Longitudinal displacement (mm) .....		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g) .....		—
	Radius of curvature of cord (mm) .....		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		—
3.3.1	Wiring terminals	No direct connection to mains.	N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> ) .....		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm) .....		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		—
3.4.1	General requirement	No direct connection to mains.	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment		N/A
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		N/A
3.5.1	General requirements	Not a system of interconnected equipment.	N/A

3.5.2	Types of interconnection circuits .....		N/A
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		N/A

4	PHYSICAL REQUIREMENTS		—
4.1	Stability		—
	Angle of 10°	Mass of unit is < 7 kg.	N/A
	Test force (N) .....	Not floor-standing equipment.	N/A

4.2	Mechanical strength		—
4.2.1	General		P
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N		No internal enclosures. N/A
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		No hazardous parts in the unit, impact test not applicable. N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm) .....		Not hand-held, direct plug-in or transportable equipment. N/A
4.2.7	Stress relief test		Metal enclosure provided. N/A
4.2.8	Cathode ray tubes		No CRT's in the equipment. N/A
	Picture tube separately certified .....		N/A
4.2.9	High pressure lamps		No high-pressure lamps. N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....		20 P

4.3	Design and construction		—
4.3.1	Edges and corners		No sharp edges P
4.3.2	Handles and manual controls; force (N) .....		No handles or manual controls. N/A
4.3.3	Adjustable controls		No such controls. N/A
4.3.4	Securing of parts		P
4.3.5	Connection by plugs and sockets		No hazard related to misconnections exists. P
4.3.6	Direct plug-in equipment		Not such equipment. N/A
	Torque .....		—
	Compliance with the relevant mains plug standard .....		N/A
4.3.7	Heating elements in earthed equipment		No heating element provided. N/A



4.3.8	Batteries	No battery in the equipment.	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No exposure to oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment does not use or produce such matters.	N/A
4.3.11	Containers for liquids or gases	No liquids or gases used.	N/A
4.3.12	Flammable liquids .....	No flammable liquid used.	N/A
	Quantity of liquid (l) .....		N/A
	Flash point (°C) .....		N/A
4.3.13	Radiation	No radiation hazard.	P
4.3.13.1	General		P
4.3.13.2	Ionizing radiation	No ionizing radiation produced.	N/A
	Measured radiation (pA/kg) .....		—
	Measured high-voltage (kV) .....		—
	Measured focus voltage (kV) .....		—
	CRT markings .....		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No ionizing radiation produced.	N/A
	Part, property, retention after test, flammability classification .....		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....	No UV radiation present.	N/A
4.3.13.5	Laser (including LEDs)	No laser in the equipment.	N/A
	Laser class .....		—
4.3.13.6	Other types .....	No other type of radiation.	N/A

4.4	Protection against hazardous moving parts		—
4.4.1	General	The equipment does not have moving parts.	N/A
4.4.2	Protection in operator access areas .....		N/A
4.4.3	Protection in restricted access locations .....		N/A
4.4.4	Protection in service access areas		N/A

4.5	Thermal requirements		—
4.5.1	General		P
4.5.2	Temperature tests	See appended table 4.5	P

	Normal load condition per Annex L .....		—
4.5.3	Temperature limits for materials		N/A
4.5.4	Touch temperature limits		N/A
4.5.5	Resistance to abnormal heat .....	No thermoplastic parts with hazardous voltages.	N/A

4.6	Openings in enclosures		—
4.6.1	Top and side openings	No top or side openings.	N/A
	Dimensions (mm) .....		—
4.6.2	Bottoms of fire enclosures		P
	Construction of the bottom, dimensions (mm) .....	No bottom openings.	—
4.6.3	Doors or covers in fire enclosures	No door or cover present.	N/A
4.6.4	Openings in transportable equipment	Not transportable equipment.	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) .....		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes	Adhesives are not used for constructional purposes.	N/A
	Conditioning temperature (°C), time (weeks) .....		—

4.7	Resistance to fire		—
4.7.1	Reducing the risk of ignition and spread of flame	Metal fire enclosure provided	P
	Method 1, selection and application of components wiring and materials		P
	Method 2, application of all of simulated fault condition tests	Not used	N/A
4.7.2	Conditions for a fire enclosure	Metal fire enclosure provided	N/A
4.7.2.1	Parts requiring a fire enclosure	Fire enclosure contains all parts.	P
4.7.2.2	Parts not requiring a fire enclosure	Fire enclosure contains all parts.	N/A
4.7.3	Materials		p
4.7.3.1	General	Metal fire enclosure provided	P
4.7.3.2	Materials for fire enclosures		P
4.7.3.3	Materials for components and other parts outside fire enclosures		P
4.7.3.4	Materials for components and other parts inside fire enclosures		P
4.7.3.5	Materials for air filter assemblies	No air filter assemblies.	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		—
5.1	Touch current and protective conductor current		N/A
5.1.1	General	Class III product. No connection to mains circuits, telecommunication networks system.	N/A
5.1.2	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Supply voltage (V) .....		—
	Measured touch current (mA) .....		—
	Max. allowed touch current (mA) .....		—
	Measured protective conductor current (mA) .....		—
	Max. allowed protective conductor current (mA) ..		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General .....		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V) .....		—
	Measured touch current (mA) .....		—
	Max. allowed touch current (mA) .....		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports .....		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		—

5.2.1	General	Functional insulation only, clearances and creepage distances meet the requirements of Clause 2.10.	N/A
5.2.2	Test procedure		N/A

5.3	Abnormal operating and fault conditions		—
5.3.1	Protection against overload and abnormal operation		P
5.3.2	Motors	No motor in the equipment.	N/A
5.3.3	Transformers	No transformer in the equipment.	N/A
5.3.4	Functional insulation .....	Clearances and creepage distances meet the requirements of Clause 2.10.	N/A
5.3.5	Electromechanical components	No such components.	N/A
5.3.6	Audio amplifiers in ITE .....	No audio amplifier.	N/A
5.3.7	Simulation of faults	Class III product with metal fire enclosure. No fault conditions are likely to cause a hazard.	N/A
5.3.8	Unattended equipment	See above	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	See clause 5.3.7 comments	N/A
5.3.9.1	During the tests		N/A
5.3.9.2	After the tests		N/A

6	CONNECTION TO TELECOMMUNICATION NETWORKS		—
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements	No TNV circuits.	N/A
	Supply voltage (V) .....		—
	Current in the test circuit (mA) .....		—
6.1.2.2	Exclusions .....		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		—
6.2.1	Separation requirements	No TNV circuits.	N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A) .....	No TNV circuits.	—
	Current limiting method .....		—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		—
7.1	General	No connection to cable distribution systems.	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		—
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)	Class III equipment with metal enclosure. All components have adequate flammability ratings.	N/A
A.1.1	Samples .....		—
	Wall thickness (mm).....		—
A.1.2	Conditioning of samples; temperature (°C) .....		N/A
A.1.3	Mounting of samples .....		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D .....		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—
	Sample 3 burning time (s).....		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material .....		—
	Wall thickness (mm).....		—
A.2.2	Conditioning of samples; temperature (°C) .....		N/A
A.2.3	Mounting of samples .....		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C .....		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—
	Sample 3 burning time (s).....		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—
	Sample 3 burning time (s).....		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	No motors in the equipment.	N/A
	Position .....		—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
B.2	Test conditions		N/A
B.3	Maximum temperatures	(see appended table 5.3)	N/A
B.4	Running overload test	(see appended table 5.3)	N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days) .....		—
	Electric strength test: test voltage (V) .....		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V) .....		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V) .....		N/A
B.8	Test for motors with capacitors	(see appended table 5.3)	N/A
B.9	Test for three-phase motors	(see appended table 5.3)	N/A
B.10	Test for series motors		
	Operating voltage (V) .....		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position .....	No mains transformer in the equipment.	—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
	Method of protection .....		—
C.1	Overload test	(see appended table 5.3)	N/A

C.2	Insulation	(see appended table 5.2)	N/A
	Protection from displacement of windings .....		N/A

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		—
D.1	Measuring instrument	Class III product with no connection to mains circuits, telecommunication networks or cable distribution systems.	N/A
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
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G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		—
G.1	Clearances	Alternative method not used.	N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply .....		N/A
G.2.2	Earthed d.c. mains supplies .....		N/A
G.2.3	Unearthed d.c. mains supplies .....		N/A
G.2.4	Battery operation .....		N/A
G.3	Determination of telecommunication network transient voltage (V) .....		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks .....		N/A
G.4.2	Transients from telecommunication networks .....		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances .....		N/A



H	ANNEX H, IONIZING RADIATION (see 4.3.13)	N/A
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)	N/A	
	Metal(s) used .....	Class III equipment.	—

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)	—	
K.1	Making and breaking capacity	No thermal controls.	N/A
K.2	Thermostat reliability; operating voltage (V) .....		N/A
K.3	Thermostat endurance test; operating voltage (V) .....		N/A
K.4	Temperature limiter endurance; operating voltage (V) .....		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation	(see appended table 5.3)	N/A

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)	—	
L.1	Typewriters	Not a typewriter.	N/A
L.2	Adding machines and cash registers	Not an adding machine or cash register.	N/A
L.3	Erasers	Not an eraser.	N/A
L.4	Pencil sharpeners	Not a pencil sharpener.	N/A
L.5	Duplicators and copy machines	Not a duplicator or copy machine.	N/A
L.6	Motor-operated files	Not a motor-operated file.	N/A
L.7	Other business equipment	Not business equipment.	N/A

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)	—	
M.1	Introduction	No TNV circuits, no ringing signal.	N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz) .....		—
M.3.1.2	Voltage (V) .....		—
M.3.1.3	Cadence; time (s), voltage (V) .....		—
M.3.1.4	Single fault current (mA) .....		—
M.3.2	Tripping device and monitoring voltage .....		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A

M.3.2.3	Monitoring voltage (V) .....		N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		—
N.1	ITU-T impulse test generators	Impulse tests not relevant.	N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		—
	a) Preferred climatic categories .....	VDR's are used in secondary circuits only.	N/A
	b) Maximum continuous voltage .....		N/A
	c) Pulse current .....		N/A
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		—
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)	No particular quality control program implemented.	N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		—
S.1	Test equipment	Impulse tests not relevant.	N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		—
		Not specially protected equipment.	—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		—
		No triple insulated wire is used.	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		—
V.1	Introduction	No direct connection to mains.	N/A
V.2	TN power distribution systems		N/A
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		—

W.1	Touch current from electronic circuits	Class III product with no connection to mains circuits, telecommunication networks or cable distribution systems.	N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current	No mains transformer in the equipment.	N/A
X.2	Overload test procedure		N/A

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus .....	No significant UV radiation present.	N/A
Y.2	Mounting of test samples .....		N/A
Y.3	Carbon-arc light-exposure apparatus .....		N/A
Y.4	Xenon-arc light exposure apparatus .....		N/A

Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N/A
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AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
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BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
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EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS		
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations	Noted
General	Delete all the “country” notes in the reference document according to the following list: 1.4.8 Note 2                      1.5.1 Note 2 & 3                      1.5.7.1 Note 1.5.8 Note 2                      1.5.9.4 Note                      1.7.2.1 Note 4, 5 & 6 2.2.3 Note                      2.2.4 Note                      2.3.2 Note 2.3.2.1 Note 2                      2.3.4 Note 2                      2.6.3.3 Note 2 & 3 2.7.1 Note                      2.10.3.2 Note 2                      2.10.5.13 Note 3 3.2.1.1 Note                      3.2.4 Note 3.                      2.5.1 Note 2 4.3.6 Note 1 & 2                      4.7 Note 4                      4.7.2.2 Note 4.7.3.1 Note 2                      5.1.7.1 Note 3 & 4                      5.3.7 Note 1 6 Note 2 & 5                      6.1.2.1 Note 2                      6.1.2.2 Note 6.2.2 Note 6.                      2.2.1 Note 2                      6.2.2.2 Note 7.1 Note 3                      7.2 Note                      7.3 Note 1 & 2 G.2.1 Note 2                      Annex H Note 2	Noted
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure  The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.  NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	N/A
1.5.1	Add the following NOTE:  NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC	Noted
1.7.2.1	Add the following NOTE:  NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss	N/A

2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	N/A												
2.7.2	This subclause has been declared 'void'.	Noted												
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	N/A												
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F";  "60227 IEC 52" by "H03 VV-F or H03 VVH2-F";  "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table border="1" data-bbox="431 1073 1260 1167"> <tr> <td>  Up to and including 6</td> <td></td> <td>0,75<sup>a)</sup></td> <td> </td> </tr> <tr> <td>  Over 6 up to and including 10</td> <td>(0,75)<sup>b)</sup></td> <td>1,0</td> <td> </td> </tr> <tr> <td>  Over 10 up to and including 16</td> <td>(1,0)<sup>c)</sup></td> <td>1,5</td> <td> </td> </tr> </table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition<sup>a)</sup>.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 <sup>a)</sup>		Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0		Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5		N/A
Up to and including 6		0,75 <sup>a)</sup>												
Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0												
Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5												
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table border="1" data-bbox="431 1356 1260 1388"> <tr> <td>  Over 10 up to and including 16</td> <td>1,5 to 2,5</td> <td>1,5 to 4</td> <td> </td> </tr> </table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4		N/A								
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4												
4.3.13.6	<p>Add the following NOTE:</p> <p>NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>	N/A												
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>	N/A												



Bibliography	Additional EN standards.	—
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
ZB	SPECIAL NATIONAL CONDITIONS	
1.2.4.1	In <b>Denmark</b> , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	N/A
1.5.7.1	In <b>Finland, Norway and Sweden</b> , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.	N/A
1.5.8	In <b>Norway</b> , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	N/A
1.5.9.4	In <b>Finland, Norway and Sweden</b> , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	N/A
1.7.2.1	In <b>Finland, Norway and Sweden</b> , CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.  The marking text in the applicable countries shall be as follows: In Finland: "Laitte on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"	N/A
1.7.5	In <b>Denmark</b> , socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.	N/A
2.2.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	N/A
2.3.2	In <b>Finland, Norway and Sweden</b> there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	N/A
2.3.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	N/A
2.6.3.3	In the <b>United Kingdom</b> , the current rating of the circuit shall be taken as 13 A, not 16 A.	N/A
2.7.1	In the <b>United Kingdom</b> , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	N/A
2.10.5.13	In <b>Finland, Norway and Sweden</b> , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	N/A

3.2.1.1	<p>In <b>Switzerland</b>, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <table border="0"> <tr> <td>SEV 6532-2.1991</td> <td>Plug Type 15</td> <td>3P+N+PE</td> <td>250/400 V, 10 A</td> </tr> <tr> <td>SEV 6533-2.1991</td> <td>Plug Type 11</td> <td>L+N</td> <td>250 V, 10 A</td> </tr> <tr> <td>SEV 6534-2.1991</td> <td>Plug Type 12</td> <td>L+N+PE</td> <td>250 V, 10 A</td> </tr> </table> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <table border="0"> <tr> <td>SEV 5932-2.1998</td> <td>Plug Type 25</td> <td>3L+N+PE</td> <td>230/400 V, 16 A</td> </tr> <tr> <td>SEV 5933-2.1998</td> <td>Plug Type 21</td> <td>L+N</td> <td>250 V, 16 A</td> </tr> <tr> <td>SEV 5934-2.1998</td> <td>Plug Type 23</td> <td>L+N+PE</td> <td>250 V, 16 A</td> </tr> </table>	SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A	SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A	SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A	N/A
SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A																							
SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A																							
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SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A																							
SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A																							
3.2.1.1	<p>In <b>Denmark</b>, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>	N/A																								
3.2.1.1	<p>In <b>Spain</b>, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	N/A																								
3.2.1.1	<p>In the <b>United Kingdom</b>, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	N/A																								
3.2.1.1	<p>In <b>Ireland</b>, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>	N/A																								
3.2.4	<p>In <b>Switzerland</b>, for requirements see 3.2.1.1 of this annex.</p>	N/A																								
3.2.5.1	<p>In the <b>United Kingdom</b>, a power supply cord with conductor of 1,25 mm<sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.</p>	N/A																								

3.3.4	<p>In the <b>United Kingdom</b>, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:</p> <ul style="list-style-type: none"> <li>• 1,25 mm<sup>2</sup> to 1,5 mm<sup>2</sup> nominal cross-sectional area.</li> </ul>	N/A
4.3.6	<p>In the <b>United Kingdom</b>, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>	N/A
4.3.6	<p>In <b>Ireland</b>, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.</p>	N/A
5.1.7.1	<p>In <b>Finland, Norway and Sweden</b> TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> <li>○ is intended to be used in a RESTRICTED ACCESS LOCATION where <ul style="list-style-type: none"> <li>○ equipotential bonding has been applied, for example, in a telecommunication centre; and</li> <li>○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and</li> <li>○ is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li> </ul> </li> </ul> </li> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li> <li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li> </ul>	N/A



6.1.2.1	<p>In <b>Finland, Norway and Sweden</b>, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>- passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 132400;</li> <li>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.</li> </ul>	N/A
6.1.2.2	<p>In <b>Finland, Norway and Sweden</b>, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p>	N/A
7.2	<p>In <b>Finland, Norway and Sweden</b>, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>	N/A
7.3	<p>In <b>Norway and Sweden</b>, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.</p>	N/A
7.3	<p>In <b>Norway</b>, for installation conditions see EN 60728-11:2005.</p>	N/A
ZC	A-DEVIATIONS (informative)	

1.5.1	<p><b>Sweden</b> (Ordinance 1990:944)</p> <p>Add the following:</p> <p>NOTE In Sweden, switches containing mercury are not permitted.</p>	N/A
1.5.1	<p><b>Switzerland</b> (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.)</p> <p>Add the following:</p> <p>NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.</p>	N/A
1.7.2.1	<p><b>Denmark</b> (Heavy Current Regulations)</p> <p>Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text:</p> <p style="text-align: center;">Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket</p> <p style="text-align: center;"> eller </p> <p>If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text:</p> <p>“For tilslutning af de øvrige ledere, se medfølgende installationsvejledning.”</p>	N/A
1.7.2.1	<p><b>Germany</b> (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2).</p> <p>If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market.</p> <p>Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.</p>	N/A
1.7.5	<p><b>Denmark</b> (Heavy Current Regulations)</p> <p>With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.</p>	N/A
1.7.13	<p><b>Switzerland</b> (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries)</p> <p>Annex 2.15 of SR 814.81 applies for batteries.</p>	N/A
5.1.7.1	<p><b>Denmark</b> (Heavy Current Regulations, Chapter 707, clause 707.4)</p> <p>TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.</p>	N/A

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>	
Printed circuit board	Remote Technologies	30-210211-10	SELV circuits only, flammability rating V-0	UL 94	UR	
Transient voltage suppressor	Littelfuse	SMBJ18CA	18 V, 600 W	UL 497B	UR	
Enclosure	Remote Technologies	-	Formed steel, black powder coating: H=127 mm, W=239 mm D= 25.4mm	-	-	
Power Jack	Switchcraft	RAPC722X	2.1 mm, right angle, 5 A	UL 94	UR	
<sup>1)</sup> An asterisk indicates a mark which assures the agreed level of surveillance						
Supplementary information:						

1.6.2	TABLE: Electrical data (in normal conditions)					N/A
U (V)	I (A)	I rated (A)	P (W)	Fuse #	I fuse (A)	Condition/status
Supplementary information: Class III equipment, no direct connection to mains						

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Functional:							
Throughout	< 16 VDC	< 16 VDC	0.2	> 0.45	0.04	> 0.15	
Basic/supplementary:							
Reinforced:							
Supplementary information: functional insulation only							

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Supplementary information: functional insulation only, no components with distance through insulation.						

4.3.8	TABLE: Batteries								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available									
Is it possible to install the battery in a reverse polarity position?									
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:									
- Chemical leaks									Verdict
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
Supplementary information: No battery in the equipment.									

4.5	TABLE: Thermal requirements						P
	Supply voltage (V) .....	16 Vdc					—
	Ambient T <sub>min</sub> (°C) .....	22					—
	Ambient T <sub>max</sub> (°C) .....	23					—
Maximum measured temperature T of part/at::		T (°C)				Allowed T <sub>max</sub> (°C)	
		Test 1	Test 2	Test 3			
D1- suppressor Diode		23.5					-
Enclosure top		23.9					70
PCB		26					100
Supplementary information:							
Temperature T of winding:		t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)
Supplementary information: No transformer							

4.5.5	TABLE: Ball pressure test of thermoplastic parts						N/A
	Allowed impression diameter (mm) .....	≤ 2 mm					—
Part				Test temperature (°C)		Impression diameter (mm)	
Supplementary information: no hazardous voltages on thermoplastic parts.							

4.7	TABLE: Resistance to fire					N/A
Part		Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Supplementary information: metal fire enclosure provided and all plastics have adequate flammability ratings						

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			N/A
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:				
Basic/supplementary:				
Reinforced:				
Supplementary information: Functional insulation only, clearances and creepage distances meet the requirements of Clause 2.10.				

5.3	TABLE: Fault condition tests					N/A
Ambient temperature (°C) .....					—	
Power source for EUT: Manufacturer, model/type, output rating .....					—	
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Supplementary information: Class III equipment with metal fire enclosure. No faults are likely to create a hazard.						

**List of test equipment used:**

ITEM	TYPE	EQUIPMENT NUMBER	CALIBRATION DATE		COMMENT
			Last	Due	
1	Chroma AC power source	9659	09/24/07	09/24/08	
2	Agilent 34970A data acquisition unit	14087	01/18/08	01/18/09	
3	Mitutoyo calipers	9844	08/02/07	08/02/08	
4	Fluke 87 Digital Multimeter	9887	09/08/07	09/18/08	
5	Wagner force gage	9646	05/21/08	05/21/09	
6	Timer	MIN-0042	03/09/08	03/09/09	

### EQUIPMENT PHOTOGRAPHS

Photo 1: External view of the CB-8-



Photo 2: Internal View of the CB-8-



### EQUIPMENT PHOTOGRAPHS

Photo 3: Top View of the CB-8 PCB-30-210211-10



Photo 4: Bottom View of the CB-8 PCB-30-210211-10

